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09/893,194	06/27/2001	Pradeep Kumar Subrahmanyam	1934.105US1	3918

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Derek J. Berger  
Seagate Technology LLC  
Intellectual Property Dept. COL2LGL  
389 Disc Drive  
Longmont, CO 80503

EXAMINER
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CAO, ALLEN T

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/893,194

Applicant(s)

SUBRAHMANYAN, PRADEEP  
KUMAR

Examiner

Allen T Cao

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-30 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 2652

1. Regarding amended claims in amd't "B" filed on 12/10/, previously restriction requirement has been withdrawn. Now claims 1-30 hereby rejoined and fully examined as follow.

2. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "the disc drive" in claim 22, lines 2-3 is vague and indefinite because it lacks antecedent basis.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 8-9, 18-24 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Riggle et al (US. 5,016,131).

Riggle et al disclose an actuator assembly for an information handling system having a main body (figure 1; figures 2 and 4 except member 28; figures 5 and 6) having an axis of rotation (axis of member 16) and an opening (see figures 2, 4 and 6) therein positioned around the axis of rotation; at least one actuator arm 22 attached to the main body; and a "**portion**" of a voice coil motor (figure 2: rotor 10, magnets 18 and coils 20); figure 4: 11, 18, 19, 26 and 20a-20b) positioned within the opening of the actuator assembly as set forth in claim 1.

Regarding claim 2, Riggle et al disclose that the voice coil motor further comprises at least two magnets (18, 18) attached to the main body of the actuator arm.

Regarding claim 3, Riggle et al disclose that the voice coil motor further comprises at least two magnets (18, 18) attached to the main body of the actuator arm, wherein the magnets form a rotor of the voice coil motor (column 3, lines 37-52).

Regarding claim 4, Riggle et al disclose that the voice coil motor further comprises a coil 20 about which the rotor rotates.

Regarding claim 8, Riggle et al inherently disclose that the actuator assembly is positioned near one end of the actuator assembly and at least one load spring and transducer are positioned at the other end of the actuator assembly (elongated member carrying member 22a inherently includes a load spring and a transducer).

Regarding claim 9, Riggle et al disclose an information handling system (disk drive) having a base (inherently, a disk drive includes a base and top cover); a yoke (10, 11) inherently attached to the base; a coil 20 attached to the yoke; a disc 24 rotatable which is inherently attached to the base; and an actuator assembly having an opening therein (see figures 2, 4 and 6), the actuator assembly further including at least two magnets (18, 18) positioned near the opening, the magnets (18, 18) and the coil 20 forming a voice coil motor, the actuator assembly capable of swinging through an arc and inherently rotatably attached to the base about the yoke as recited in claim 9.

Regarding claim 18, Riggle et al disclose that the voice coil motor is a true torque motor.

Art Unit: 2652

Regarding claim 19, Riggle et al disclose an information handling system (disk drive) having a base (inherently, a disk drive includes a base and top cover); a disk 22 (inherently attached to the base); an actuator assembly (figures 1-2 and 4) rotatably inherently attached to the base, the actuator capable of passing through an arc; and a means for moving the actuator assembly, the moving means being attached to the actuator assembly (see above rejection).

Regarding claim 20, Riggle et al disclose that the moving means includes a voice coil motor (see above rejection).

Regarding claim 21, Riggle et al disclose that the moving means further comprises at least two magnets (18, 18) attached to the main body (see also above rejection).

Regarding claim 22, Riggle et al disclose that the moving means further comprises a coil 20 inherently attached to the base.

Regarding claim 23, Riggle et al disclose that the voice coil motor further comprises at least two magnets (18, 18) attached to the main body of the actuator arm, wherein the magnets form a rotor of the voice coil motor (see above rejection).

Regarding claim 24, Riggle et al disclose that the voice coil motor further comprises a coil 20 about which the rotor rotates.

Regarding claim 28, Riggle et al disclose that the handling information system is a disc drive.

Regarding claim 29, Riggle et al disclose that the storage medium 24 is a magnetic medium.

Art Unit: 2652

Regarding claim 30, Riggle et al disclose that the storage medium 24 is a rotating disc.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-7, 10-15, 17 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riggle et al.

Riggle et al do not clearly disclose that the orientation of the magnets (18, 18) is substantially orthogonal to one another (claims 5 and 25); substantially circular oriented (claims 6 and 26); arranged as a Halbach array (claims 7 and 27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the locations of the magnets (18, 18) of Riggle et al such that the orientation of them are substantially orthogonal to one another (claim 5); substantially circular oriented (claim 6); arranged as a Halbach array (claim 7) through an obvious rearranging of parts (rearranging magnets locations) in order to improve magnetic flux between magnets and coils, thus improving rotational characteristics of the actuator arm.

Regarding claims 13 and 14, Riggle et al do not disclose that the yoke is made of a material capable of absorbing heat.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the yoke of Riggle et al with a absorbing heat

Art Unit: 2652

material through a obvious replacement of an known material such as absorbing heat as claimed to reduce heat of the actuator assembly in order to prevent misalignment during rotation operation, thus improve read/write characteristics of the head.

Regarding claim 14, Riggle et al do not disclose that the yoke is formed of the same material as the base.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the yoke of Riggle et al with a same material with the base through a obvious replacement of an known material to provide same thermal characteristics between the yoke and the base in order to prevent misalignment causing by different thermal characteristics to improve the rotation operation of the actuator assembly, thus improve read/write characteristics of the head.

Regarding claim 15, Riggle et al do not disclose that the yoke is formed integral with the base.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the yoke of Riggle et al integrally with the base because it obvious to modify from attaching two parts to integrally form two parts is obvious to engineer design choice in order to save manufacturing time, thus save manufacturing cost.

Regarding claim 17, Riggle et al disclose that the voice coil produces first and second moment about the pivot; however, Riggle do not indicate that the first moment being substantially offset by the second moment.

Art Unit: 2652

It would have been obvious to one of ordinary skill in the art at the time the invention was made to indicate that the first moment being substantially offset by the second moment because Reggle et al show that the actuator assembly comprises two substantially balanced identical magnets mounted to the shaft 16 (18, 18); two substantially balanced identical coils (20a, 20b) mounted to the rotor 10. The actuator arm moves to the left or right from the center axis of the shaft 16 with both side are balanced in weight and magnetic flux; therefore, it would It would have been obvious to one of ordinary skill in the art at the time the invention was made to indicate that the first moment being substantially offset by the second moment.

7. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

8. Applicant's arguments filed 12/10/03 have been fully considered but they are not persuasive.

9. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2652

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Applicant's amendment (claims 1-8, lines 1-2; claim 19, lines 1, 3 and 6; claims 20-29, line 1) necessitated the new ground(s) of rejection presented in this Office action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen T Cao whose telephone number is (703) 305-3796. The examiner can normally be reached on Tues - Fri (7:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen Cao  
Primary Examiner

AC  
February 12, 2004